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EXAMINER

HOLLIDAY, JAIME MICHELE

ART UNIT PAPER NUMBER

2617

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/673,480	Applicant(s) FONG ET AL.	
	Examiner Jaime M. Holliday	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/21/06
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-14 is/are allowed.
- 6) ☒ Claim(s) 1-11 and 15-20 is/are rejected.
- 7) ☒ Claim(s) 19 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

Response to Arguments

1. Applicant's arguments with respect to **claims 1-20** have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. **Claims 19 and 20** are objected to because of the following informalities:
 - a) On line 1 of both claim 19 and claim 20, replace "method" with --system-- after "The," in order to properly depend claims from independent claim 10.Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1, 3, 4 and 10** are rejected under 35 U.S.C. 102(b) as being anticipated by **Zdunek et al. (U.S. Patent # 4,870,408)**.

Consider claim 1, Zdunek et al. clearly show and disclose a method to dynamically allocate a number of data channels, reading on the claimed

“carriers,” on a trunked radio (voice/data) system **100**, reading on the claimed “wireless communications network,” and to redistribute or balance data traffic load on the particular number of data channels currently available (column 2 lines 20-25, column 3 lines 11-12). The data activity is monitored during a predetermined interval and if the data activity is above a predetermined maximum, reading on the claimed “establishing a maximum load value for at least one of a voice or data traffic on a carrier,” (column 2 lines 20-25 and 32-36). If data traffic is low, a data channel is reallocated for voice message only providing superior access time and system performance, reading on the claimed “maintaining loading on said carrier at a level no greater than said established maximum load value by converting said carrier from voice and data traffic to voice-only traffic,” (column 2 lines 37-44). It is known in the art that data channels can support voice as well as data traffic. The network comprises at least one host computer **106**, which is coupled to a network controller **108** that monitors the activity on the data channels, and communicates with a central controller **102** that monitors the voice activity (column 3 lines 34-38, column 5 lines 27-29). If the central controller determines that voice activity has exceeded a predetermined threshold, the central controller requests the network controller to relinquish a data channel, reading on the claimed “converting said carrier from voice and data traffic to voice only traffic upon exceeding said established maximum load value, wherein said established maximum load value is a

threshold defined to ensure acceptable quality of communications,” (column 5 lines 38-41).

Consider **claim 3**, Zdunek et al. further disclose that the data activity is monitored during a predetermined interval and if the data activity is above a predetermined maximum, reading on the claimed “maximum load value is a data load value” (column 2 lines 20-25 and 32-36).

Consider **claim 4**, Zdunek et al. clearly show and disclose a method to dynamically allocate a number of data channels, reading on the claimed “carriers,” on a trunked radio (voice/data) system, reading on the claimed “wireless communications network,” and to redistribute or balance data traffic load on the particular number of data channels currently available (column 2 lines 20-25, column 3 lines 11-12). If data traffic is low, a data channel is reallocated for voice message only providing superior access time and system performance, reading on the claimed “dynamically managing relative voice and data call loading among one or more carriers to a prescribed quality of service level by converting said carrier from voice and data traffic to voice-only traffic,” (column 2 lines 37-44). It is known in the art that data channels can support voice as well as data traffic. The network comprises at least one host computer, which is coupled to a network controller that monitors the activity on the data channels, and communicates with a central controller that monitors the voice activity (column 3 lines 34-38, column 5 lines 27-29). If the central controller determines that voice activity has exceeded a predetermined threshold, the central controller

requests the network controller to relinquish a data channel, reading on the claimed "converting said carrier from voice and data traffic to voice only traffic upon exceeding said established maximum load value, wherein said established maximum load value is a threshold defined to ensure acceptable quality of communications," (column 5 lines 38-41).

Consider **claim 10**, Zdunek et al. clearly show and disclose a method to dynamically allocate a number of data channels, reading on the claimed "carriers," on a trunked radio (voice/data) system, reading on the claimed "wireless communications network," and to redistribute or balance data traffic load on the particular number of data channels currently available (column 2 lines 20-25, column 3 lines 11-12). The data activity is monitored during a predetermined interval and if the data activity is above a predetermined maximum, reading on the claimed "maximum level," (column 2 lines 20-25 and 32-36). If data traffic is low, a data channel is reallocated for voice message only providing superior access time and system performance, reading on the claimed "converting said carrier from voice and data traffic to voice-only traffic," (column 2 lines 37-44). It is known in the art that data channels can support voice as well as data traffic. The network comprises at least one host computer, which is coupled to a network controller that monitors the activity on the data channels, and communicates with a central controller that monitors the voice activity (column 3 lines 34-38, column 5 lines 27-29). If the central controller determines that voice activity has exceeded a predetermined threshold, the central controller

requests the network controller to relinquish a data channel, reading on the claimed "call controller operable to maintain call loading on a carrier at a level not to exceed a predetermined maximum level for at least one of voice or data traffic in the carrier by converting said carrier from voice and data traffic to voice only traffic upon exceeding said established maximum load value, wherein said established maximum load value is a threshold defined to ensure acceptable quality of communications," (column 5 lines 38-41).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. **Claims 2 and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Zdunek et al. (U.S. Patent # 4,870,408)** in view of **Brody et al. (U.S. Patent # 4,670,899)**.

Consider **claim 2**, and **as applied to claim 1 above**, Zdunek et al. clearly show and disclose the claimed invention except that the predetermined maximum, reading on the claimed "maximum load value," is a voice load value.

In the same field of endeavor, Brody et al. clearly show and disclose balancing of loading of cells in a cellular mobile radio telephone system is performed by periodically determining the channel utilization of each cell, computing a representative voice channel occupancy level, reading on the claimed "voice load value," and attempting to hand-off calls, reading on the claimed "at least one of voice or data traffic," If a (voice) channel occupancy level exceeds a predetermined threshold level a call is transferred, reading on the claimed "established maximum load value is a voice load value" (abstract and column 7 lines 18-20).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to establish the predetermined maximum as that of the voice channel occupancy level, reading on the claimed "voice load value," as taught by Brody et al., the method and system of Zdunek et al., in order to balance call load efficiently.

Consider **claim 11**, and **as applied to claim 10 above**, Zdunek et al. clearly show and disclose the claimed invention except that that a handoff is effected between base station sectors or cell sites.

In the same field of endeavor, Brody et al. clearly show and disclose balancing of loading of cells in a cellular mobile radio telephone system is performed by periodically determining the channel utilization of each cell, computing a representative voice channel occupancy level, reading on the claimed "call load," and attempting to hand-off calls, reading on the claimed "at least one of voice or data traffic," from cells with higher voice channels occupancy levels to adjacent cells with lower voice channel occupancy levels. If a channel occupancy level, reading on the claimed "call load," for a first geographical area, reading on the claimed "base station sector or cell site," exceeds a predetermined threshold level, at least one call is transferred from a stationary transceiver serving the first geographical area to a stationary radio transceiver serving another predetermined geographical area overlapping the first area and also containing the mobile transceiver, reading on the claimed "control means operable to effect call handoff from a first base transceiver station

sector or cell site to a second base transceiver sector or cell site upon attainment of call loading for said at least one of voice or data traffic at a percentage of said predetermined maximum level" (abstract and column 7 lines 12-24).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to handoff calls between geographical areas, reading on the claimed "base transceiver station sector or cell site," as taught by Brody et al., in the method and system of Zdunek et al., in order to balance call load efficiently.

9. **Claims 5, 9 and 15-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Zdunek et al. (U.S. Patent # 4,870,408)** in view of **Kotzin et al. (U.S. Patent # 5,796,722)**.

Consider **claim 5**, and **as applied to claim 4 above**, Zdunek et al. clearly show and disclose the claimed invention except that voice and data are maintained on different call carriers.

In the same field of endeavor, Kotzin et al. clearly show and disclose a multi-carrier wireless communication system that employs the use of handoff as a means for balancing the call traffic, reading on the claimed "voice and data call load," among a plurality of carriers within the communications system, reading on the claimed "voice and data loads are maintained on different call carriers" (column 2 lines 60-64).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to balance call traffic on multiple carriers as taught by Kotzin et al., in the system of Zdunek et al., in order to allocate data channels for voice traffic to balance call load efficiently.

Consider **claim 9**, and **as applied to claim 4 above**, Zdunek et al. clearly show and disclose the claimed invention except that voice or data are move from a first to second carrier.

In the same field of endeavor, Kotzin et al. clearly show and disclose a multi-carrier wireless communication system that employs the use of handoff as a means for balancing the call traffic, reading on the claimed "voice and data call load," among a plurality of carriers within the communications system, reading on the claimed "voice and data loads are maintained on different call carriers" (column 2 lines 60-64). A metric is monitored and evaluated on a first of a plurality of carriers, and, if appropriate, a second carrier is identified, which has excess capacity available. Once a second carrier has been identified, the communication system will select a suitable subscriber candidate resident on the first carrier to handoff from the first carrier to the second carrier, thereby improving the metric associated with the first carrier, reading on the claimed "implementing a migration of at least a portion of said voice or data loading from a first carrier to a second carrier" (column 3 lines 7-15).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to balance call traffic by effecting a

handoff between carriers as taught by Kotzin et al., in the system of Zdunek et al., in order to allocate data channels for voice traffic to balance call load efficiently.

Consider **claims 15, 17 and 19**, and **as applied to claims 1, 4 and 10 above**, respectively, Zdunek et al. clearly show and disclose the claimed invention except that data channels are allocated for voice traffic by adding only voice while removing data.

In the same field of endeavor, Kotzin et al. clearly show and disclose a multi-carrier wireless communication system that employs the use of handoff as a means for balancing the call traffic among a plurality of carriers within the communications system, (column 2 lines 60-64). A metric of the wireless communication system is monitored and evaluated, which corresponds to the quality of the load on a first of a plurality of carriers, and a second carrier is identified which has excess capacity available. Once a second carrier has been identified, the communication system will select a suitable subscriber candidate resident on the first carrier to handoff from the first carrier to the second carrier, thereby improving the metric associated with the first carrier, reading on the claimed "converting said carrier from voice and data traffic to voice-only traffic is accomplished by admitting additional voice traffic to said carrier while removing data traffic by hard handoff onto any other available carrier having a lowest load value until loading on said carrier is reduced below said established maximum load value," (column 3 lines 7-15).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to balance call traffic by effecting a handoff between carriers as taught by Kotzin et al., in the system of Zdunek et al., in order to allocate data channels for voice traffic to balance call load efficiently.

Consider **claims 16, 18 and 20**, and **as applied to claims 1, 4 and 10 above**, respectively, Zdunek et al. clearly show and disclose the claimed invention except that data channels are allocated for voice traffic by adding only voice while migrating data traffic.

In the same field of endeavor, Kotzin et al. clearly show and disclose a multi-carrier wireless communication system that employs the use of handoff as a means for balancing the call traffic among a plurality of carriers within the communications system, (column 2 lines 60-64). A metric of the wireless communication system is monitored and evaluated, which corresponds to the quality of the load on a first of a plurality of carriers, and a second carrier is identified which has excess capacity available. Once a second carrier has been identified, the communication system will select a suitable subscriber candidate resident on the first carrier to handoff from the first carrier to the second carrier, thereby improving the metric associated with the first carrier, reading on the claimed "converting said carrier from voice and data traffic to voice-only traffic is accomplished by admitting additional voice traffic to said carrier while implementing a migration of data traffic onto any other available carrier having a

lowest load value until loading on said carrier is reduced below said established maximum load value,” (column 3 lines 7-15).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to balance call traffic by effecting a handoff between carriers as taught by Kotzin et al., in the system of Zdunek et al., in order to allocate data channels for voice traffic to balance call load efficiently.

10. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Zdunek et al. (U.S. Patent # 4,870,408)** in view of **Ayyagari et al. (U.S. Patent # 6,278,701)**.

Consider **claim 6**, and as applied to **claim 4** above, Zdunek et al., clearly show and disclose the claimed invention except that the quality of service level of the communication system is improved by adjusting base transceiver station transmit power.

In the same field of endeavor, Ayyagari et al. clearly show and disclose a method of enhancing the capacity of a CDMA cellular carrier supporting voice and multi-code data user which comprises the steps of setting a quality of service requirement for the data users based on the traffic load and the quality of service requirement for the voice users, and decreasing the received power level of the data users until their quality of service requirement is satisfied, reading on the claimed “base transceiver station transmit power is adjusted to maintain said prescribed quality of service level” (figure 1 and column 3 lines 16-21 and 24-25).

It is inherent in a CDMA cellular system or a wireless communications network that power in such a system is transmitted from a base station or base station transceiver.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to decrease the received power level, reading on the claimed "base transceiver station transmit power," to satisfy the quality of service requirement as taught by Ayyagari et al., in the method and system of Zdunek et al., in order to improve the capacity and quality of the communication system.

11. **Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zdunek et al. (U.S. Patent # 4,870,408) in view of Salonaho et al. (U.S. Patent # 6,594,495 B2).**

Consider **claim 7**, and **as applied to claim 4 above**, Zdunek et al., clearly show and disclose the claimed invention except that intra-cell interference is maintained in order to improve the capacity and quality of the communication system.

In the same field of endeavor, Salonaho et al. clearly show and disclose a method and radio system in which a load can be optimally controlled at a connection and/or cell level. The signals **23** represent interference within a cell **1**, reading on the claimed "intra-cell interference," as these desired signals interfere with one another. Referring to equation (4) if the load **L** substantially

exceeds that is allowed according to the predetermined threshold value K_t , the effect of the interference on the desired signals of the cell is reduced preferably by decreasing the data transmission rate of the desired signals, reading on the claimed "intra-cell interference is maintained below a prescribed level" (figure 2, column 2 lines 23-25, column 5 lines 51-53 and column 6 lines 9-14).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to reduce the effect of the interference within a cell, reading on the claimed "intra-cell interference," as taught by Salonaho et al., in the method and system of Zdunek et al., in order to improve the capacity and quality of the communication system.

Consider **claim 8**, and **as applied to claim 4 above**, Zdunek et al., clearly show and disclose the claimed invention except that inter-cell interference is maintained in order to improve the capacity and quality of the communication system.

In the same field of endeavor, Salonaho et al. clearly show and disclose a method and radio system in which a load can be optimally controlled at a connection and/or cell level. Signals of other cells arrive at the cell 1 from outside, the signals being interferences 13 in the cell, reading on the claimed "inter-cell interference". Referring to equation (4) if the load L substantially exceeds that is allowed according to the predetermined threshold value K_t , the effect of the interference on the desired signals of the cell is reduced preferably by decreasing the data transmission rate of the desired signals, reading on the

claimed "intra-cell interference is maintained below a prescribed level" (figure 2, column 2 lines 23-25, column 5 lines 53-55 and column 6 lines 9-14).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to reduce the effect of the interference from outside a cell, reading on the claimed "inter-cell interference," as taught by Salonaho et al., in the method and system of Zdunek et al., in order to improve the capacity and quality of the communication system.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jaime M. Holliday whose telephone number is (571)

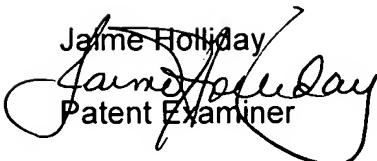
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272-8618. The examiner can normally be reached on Monday through Friday 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


JOSEPH FEILD
SUPERVISORY PATENT EXAMINER

Jaime Holliday

Patent Examiner